

The Complexities of Interagency Information Sharing

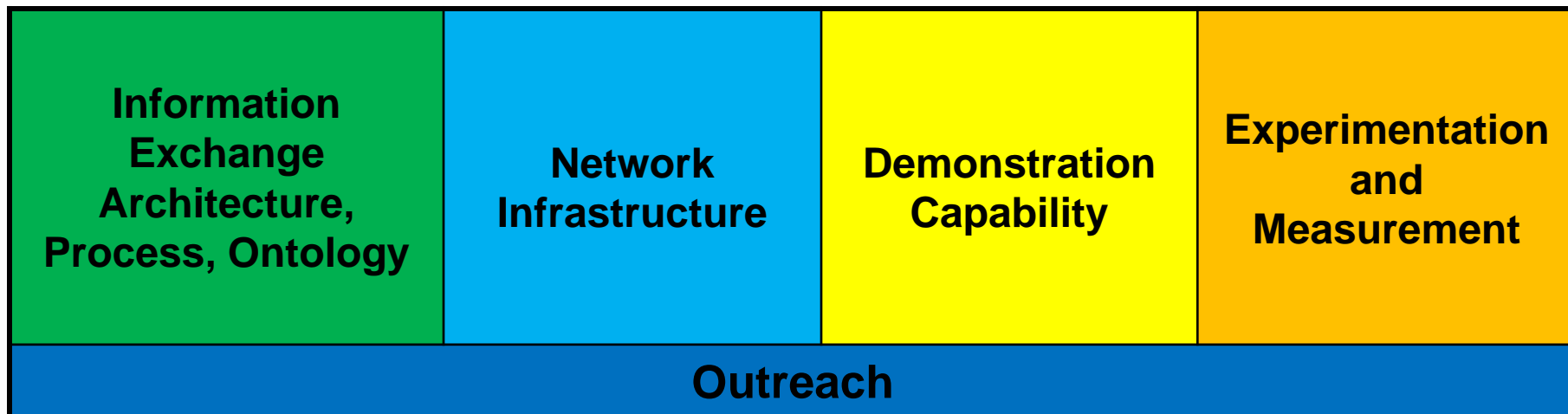
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Agenda

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- Application
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Mission

The Net-Centric Operations Division (NCOD) leads the Joint Planning and Development Office (JPDO) and its multi-agency and industry partners in realizing information-sharing capabilities to improve situational awareness, enhance decision making, and facilitate collaboration.



Information Sharing Challenges

Weather
Community

Integrated
Surveillance
Community

UAS
Community

Flight and
Flow
Community

Safety
Community

Airport
Operations
Community

Airline
Operations
Community

Other
Communities

Conform



Standards

AXIM
WXXM
FIXM

KML
GML

WCS
WFS
WMS

ebXML
UDDI

Other Standards

Services

Weather

Flight
Track

SAR

Time

Other Services

Publish



Data

Classification

Live

Geospatial
Coverage

Recorded

Temporal
Coverage

Simulated



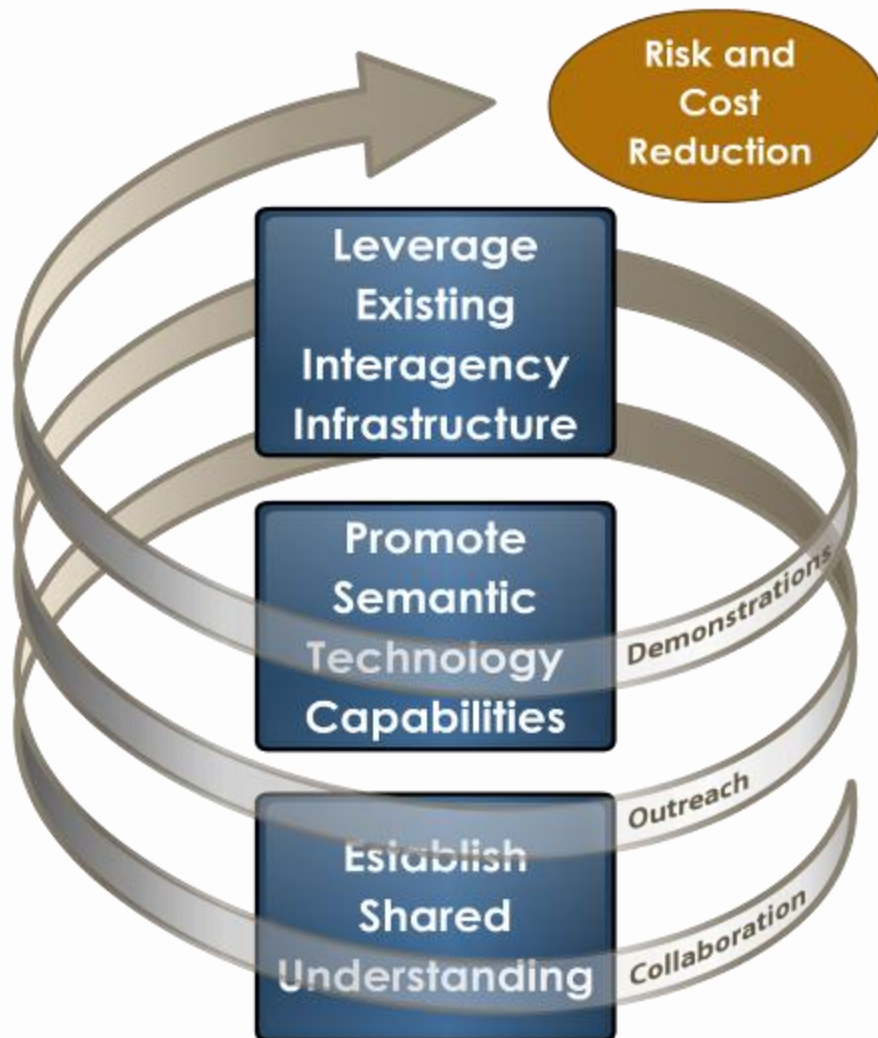
Commercial
Entities

State/Local
Government

International
Partners



Approach



- **A reiterative process** for developing shared understanding through definition of information elements across domains.
- **A technology capabilities stack** that enables the information-sharing vision of NextGen.
 - Service-Oriented Architecture
 - Semantic Web Technology
 - Federated Ontology
- **An interagency infrastructure** that employs the technology stack and information-sharing approaches and validates them in a near-realistic environment.
 - Enables shared R&D
 - Addresses real-world information-sharing obstacles
 - Identifies pathways to near-term operational improvements

Process



- **Community of Interest (COI) Engagement Plan**
- **Key Deliverables**
 - Ontology
 - Business Context (DoDAF Artifacts)
 - Business Process Model
 - Information Exchange Definitions
 - Architecture Products
 - Ontology products and XML
- **Current Engagements**
 - Weather
 - Integrated Surveillance
 - Unmanned Aircraft Systems
- **Consistent with DoD Net-Centric Data Strategy**

Information
Exchange
Architecture,
Process, Ontology

Infrastructure: The Net-Enabled Test Environment (NETE)

- **Concept**

- Virtual test environment – no new facility
- Government and industry participation
- Experimental approach – test, measure, evaluate, adjust
- Adopts existing projects and leverages progress

Network
Infrastructure

- **Benefits**

- Available data sets will bring interested developers
- Allows demonstration of concepts to flesh out requirements
- Allows trade-off studies for architectural decisions – standards, processes, TTPs, tools, infrastructure design
- Tests governance model for efficiency
- Accessible to all NextGen participants and can link to outside data sources/consumers
- Leverages work already being done by NextGen stakeholders

Demonstrations

- **Interagency Infrastructure Modeling**
 - Developed a framework for analyzing interagency information-sharing services
 - Focused on the performance and communication characteristics of candidate applications
- **Communication Validation Demonstration**
 - Prepared NETE as the demonstration platform
 - Established connectivity among nodes
- **Information Exchange Demonstration #1**
 - Established the software and service framework
 - Exercised information exchanges related to Integrated Surveillance and Weather
 - Demonstrated the Semantic Metadata Catalog and Portal prototype
- **Information Exchange Demonstration #2**
 - Demonstrated the Semantic Metadata Catalog and Portal prototype, which were enhanced for community use
 - Integrated FAA National Airspace Service Registry (SWIM registry) and made SWIM services discoverable/available for use
 - Made FAA operational data available through FTI DEX gateway to users on the NETE
 - Showed registry and availability of services to access data for Integrated Surveillance and Weather community missions

Demonstration
Capability

2/2011

3/2011

5/2011

8/2011

Integrated
Surveillance Demo

10/2011

Integrated Surveillance Demonstration

- **Demonstrate Air Domain Awareness Information-Sharing Capabilities in an Interagency Net-Centric Environment**
 - Leverage SOA-enabled information sharing to allow for the exchange of operational data across functional and logical domains
 - Integrate existing collaboration and decision support tools to create a prototype enterprise environment
- **Programmatic Benefits**
 - Cost savings through consolidation of systems\capabilities
 - Elimination of duplication throughout the interagency environment
 - Forge partnerships between interagency organizations and industry
- **Technical Benefits**
 - Seamless data exchange
 - Instantaneous Shared Situational Awareness (SSA)
 - Same picture... same data... same time
 - Increased decision cycle time for senior leaders

Experimentation
and Measurement

Challenges and Needs

- **Mature and Transition NETE Infrastructure**
 - Establish NextGen Information Sharing Environment (NISE) framework
 - Develop functional, operational, and technical descriptions
 - Supports NextGen information sharing
 - Addresses interoperability objectives
 - Leverage the NETE and information exchange documentation to inform the products
- **Governance**
 - Assess current information-sharing policies
 - Promote enterprise level approach
- **Operational Issues**
 - Use existing infrastructures and tie them together at the right level
 - Define business rules
- **Technical Issues**
 - Establish a common trust model (Federated Identity Management)
 - Implement attribute-based access control/data tagging
 - Ensure services are discoverable across domains

Outreach

Take Away Thoughts

- Effective information sharing cannot be achieved without **collaboration among independent agencies and industry**.
- There must be a **common understanding** of information requirements, relationships, vocabulary, and agreed-upon authoritative sources.
- Agencies must **align policies** and **apply technology** to improve information mobility.
- Successful information sharing requires a major **cultural shift** to remove information sharing barriers.
- Benefits can be realized, but require **identification of security concerns** and **consideration of risks**.
- It is critical to continue to **make investments in future technology and agency initiatives** and **apply “lessons learned”** from demonstrations.

JPDO Online Resources



JPDO Web Site

www.jpdo.gov



NextGen Institute

www.nginstitute.org



Twitter

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Wikipedia

www.wikipedia.org

Questions?